US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Rapid Assessment Sediment Transport Model Development for Urban Channels

Needs & Problems Addressed:

- SAM and HEC-6 are limited in their applications to complex urban systems
- Need a design methodology that integrates the channel morphology in the project reach with the watershed dynamics

Objectives:

- Develop simple simulation procedure that balances water and sediment continuity along an urban stream network, with ability to assess impacts of channel and watershed alterations to channel morphology
- Adapt existing model to handle attributes common to urban channel systems, incorporate this model as a module within HEC-RAS

US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Rapid Assessment Sediment Transport Model Development for Urban Channels

Work Unit Funding Profile:

FY03	FY04	FY05	Total
$200k	$200k	$125k	$575k

Comments on funding plan:

- Leveraging with other research and reimbursable activities for cost efficiency

US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Rapid Assessment Sediment Transport Model Development for Urban Channels

Business Program/Missions Areas Supported:

- Inland Navigation 20 %
- Coastal Navigation __ %
- Coastal Storm Damage Reduction 10 %
- Inland Flood Control/Damage Reduction 40 %
- Environmental Protection & Quality 20 %
- Multi-Purpose (Hydropower, Rec & Water Supply) __ %
- Emergency Management 10 %
- Regulatory __ %
- Support for Others __ %

(Must to add to 100%) Total: 100 %

US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Rapid Assessment Sediment Transport Model Development for Urban Channels

CW Strategic Goals Check List: (check if applies)

- Provide sustainable water resources development & mgmt _X_
- Restore past environment degradation ___
- Provide project services of high quality _X_
- Reduce losses from natural & manmade hazards _X_
- Supports being a world class technical leader _X_
- Addresses strategic or system needs in a framework or integrated approach by developing:
  - Methods or decision support tools _X_
  - Technology to improve life cycle productivity ___
  - Technology to monitor systems, provide feedback and develop operating guidance ___

US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Rapid Assessment Sediment Transport Model Development for Urban Channels

Which “short term” field needs does this support:

- Improves efficiencies in Crops planning, design, and evaluation of sediment transport in urban channel systems
- Preserves and enhances environmental quality
- Improves decision-making at the project level
- Reduces overall life-cycle costs by promoting effective designs that address sediment transport

Field Review Group Relative Ranking:

- Viewed favorably at March 2002 FDR FRG
- FRG planned for 21-22 August 2002

US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Rapid Assessment Sediment Transport Model Development for Urban Channels

Listening Sessions Check List: (check if applies)

- Improves data sharing/exchange with the public in these areas:
  - Provides one stop shop for maps & data for basin wide planning ___
  - Provides data to make informed decisions _X_
  - Provides a system for basin wide planning ___
  - Provides information about what is happening at Corps facilities ___ (up to date web sites)
- Tech Transfer plan to include educating the public _X_
- Coordinate research, models, analysis with regulatory agencies to insure results will be accepted _X_
- Develop R&D products:
  - For watershed management plans, not just at the project level _X_
  - To include aesthetics as components of all projects ___
- Create better models for ground & surface water _X_

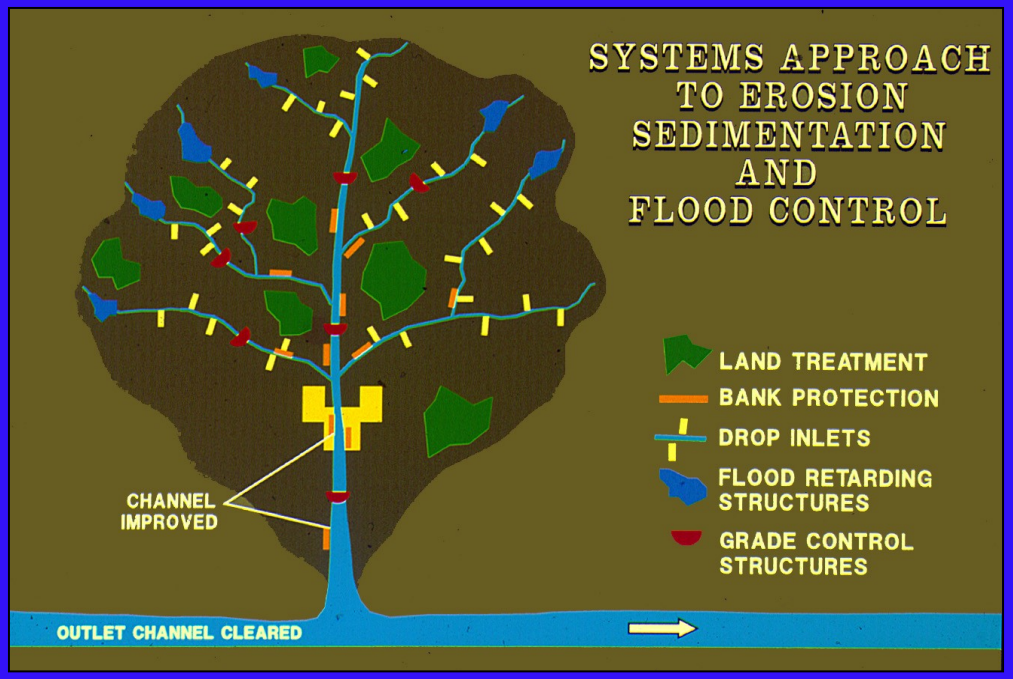
US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Rapid Assessment Sediment Transport Model Development for Urban Channels

Products:

- TN: Watershed Assessment Model
- TN: Beta-test Results
- User's manual on watershed sediment assessment module
- JP: Tools for urban sediment transfer
- Workshop on sediment transport effects on urban hydrology



US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Rapid Assessment Sediment Transport Model Development for Urban Channels

Benefits

- Direct:
  - Allow engineers to conduct a rapid assessment of various alternatives for urban channel systems
  - Minimizes life cycle costs
- Indirect:
  - Provides framework for ensuring project functions properly from engineering, geomorphic, and environmental perspective
  - Enhances and compliments other USACE research and reimbursable activities

US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Rapid Assessment Sediment Transport Model Development for Urban Channels

Technology Transfer Plan:

- User's manual detailing research results and model application
- Publish Technical Notes and Journal Papers
- Conduct workshops to present research findings
- Any knowledge gained will be made available to educate the public through the TOWNS website
- Coordinate results with regulatory agencies

US Army Corps of Engineers®

R&D Program: TOWNS

Work Unit: Rapid Assessment Sediment Transport Model Development for Urban Channels

Why should the Corps fund this R&D, instead of private industry and/or others:

- Private industry not concerned with system-wide analyses
- Corps has primary responsibility through CAP and other programs

What is Impact if not started:

- Continued higher O&M due to inefficient sediment transport in urban systems
- Overdesign or underdesign of urban channel restoration project resulting in inefficient use of taxpayer dollars